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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,559	02/20/2002	Ronald Raymond Riso	GRP-0012	3254
23413	7590	12/17/2004	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			MARMOR II, CHARLES ALAN	
			ART UNIT	PAPER NUMBER
			3736	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/069,559

Applicant(s)

RISO, RONALD RAYMOND

Examiner

Charles A. Marmor, II

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-12 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,10,12,14-18 and 21 is/are rejected.
- 7) ☒ Claim(s) 8,9,11,19,20 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed August 12, 2004. The Examiner acknowledges the amendments to claims 1, 3-6, 8-10, 12 and 14-21, as well as the cancellation of claims 2 and 13. Claims 1, 3-12 and 14-22 are pending.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 21 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 21 recites that the sets of dedicated electrodes are placed in relation to at least one muscle or different parts of said at least one muscle. This recites a positive relationship to the human body. However, the human body is non-statutory subject matter and cannot be positively recited. Therefore, Applicant should amend the claim to recite that the sets of dedicated electrodes are --adapted to be-- placed in relation to at least one muscle or different parts of said at least one muscle.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 4, 7, 10, 12, 14, 15, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mavroidis et al. ('393) in view of Becker et al. Mavroidis et al. teach that control signals for prosthetic devices may be generated using EMG signals. The EMG signals are obtained using a plurality (six EMG channels) of sets of dedicated electrodes (bipolar surface electrode pairs) that detect EMG signals from six distinct muscles or muscle compartments of the forearm (col. 13, lines 21-43). The sets of electrodes may be placed in relation to different parts of at least one muscle. Mavroidis et al. teach all of the limitations of the claims except that the dedicated electrodes are placed subcutaneously, epimesially or intramuscularly. Becker et al. teach that it is advantageous to use electrodes that are placed subcutaneously directly at or inside the muscle (versus skin surface electrodes) in order to provide good separation of signals originating from different muscles, improvement in the delivery of signals for a proportional control (to muscle activity) of artificial limbs, and good long time reliability. It would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to use subcutaneously-implanted, intramuscular electrodes similar to those of Becker et al. in place of the surface electrodes in a prosthesis control device similar to that of Mavroidis et al. in order to provide good separation of EMG signals originating from different muscles, improvement in the delivery of signals for a proportional control (to muscle activity) of artificial limbs, and good long time reliability.

6. Claims 5, 6, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mavroidis et al. ('393) in view of Becker et al. as applied to claims 1, 4, and 12 above, and

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further in view of Farry et al. ('479). Mavroidis et al., as modified by Becker et al. hereinabove, teach all of the limitations of the claims except that the control signals for the one or more prosthesis components are produced with a signal processing means utilizing a pattern recognition method and an artificial neural network. Farry et al. teach a prosthetic control system that controls multiple motions of an artificial limb by using one or more myoelectric signal measurements (electrode sites) which are processed using a pattern recognition method and an artificial neural network that generates the control signals. It would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to use pattern recognition methods and artificial neural networks similar to those of Farry et al. to process the EMG signals detected with an apparatus similar to that of Mavroidis et al., as modified by Becker et al. hereinabove, into prosthesis component control signals while providing an evolving classifier program than enables individualized control of a controller of powered prosthesis utilizing the detected EMG signals.

Allowable Subject Matter

7. Claims 8, 9, 11, 19, 20 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:
Regarding claims 8 and 19, no prior art of record teach or fairly suggest a method or

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apparatus, as claimed by Applicant, where sets of electrodes are placed in relation to at least the Flexor Digitorum, the Extensor Digitorum, the Flexor Pollicis Longus and the Extensor Pollicis Longus.

Regarding claims 9 and 20, no prior art of record teach or fairly suggest a method or apparatus, as claimed by Applicant, where sets of electrodes are placed in relation to at least the Flexor Digitorum, the Extensor Digitorum, the Flexor Pollicis Longus, the Extensor Pollicis Longus, the Pronator Teres, the Supinator, the Flexor Carpi Radialis and the Extensor Carpi Radialis.

Regarding claims 11 and 22, no prior art of record teach or fairly suggest a method or apparatus, as claimed by Applicant, where sets of electroneurographic signals from ENG electrodes are used in addition to the EMG signals for generating the prosthesis control signals.

Response to Arguments

9. Applicant's arguments, see paragraphs 4 and 5 of page 6 of the Remarks, filed August 12, 2004, with respect to the objections to claims 2,6 8-10, 12-14 and 16-21 and the rejections of claims 19 and 20 under 35 U.S.C. 112, second paragraph, have been fully considered and are persuasive. The objections to claims 2,6 8-10, 12-14 and 16-21 and the rejections of claims 19 and 20 under 35 U.S.C. 112, second paragraph, have been withdrawn.

10. Applicant's arguments, see pages 7-11 of the Remarks, filed August 12, 2004, with respect to the rejections of claims 1-6, 10, 12-15, 16, 17 and 21 under 35 U.S.C. 102(b) as anticipated by at least one of Maloney ('476), Graupe ('141) or Hudgins ('780) have been fully

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considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the newly found references to Mavroidis et al. ('393) and Becker et al. Mavroidis et al. teach the use of a plurality of sets of dedicated electrodes that detect EMG signals that are used to generate controls signals for prosthesis components. Becker et al. teach advantages of using implanted electrodes versus skin electrodes to obtain EMG measurements. Farry et al. teach the use of pattern recognition and an artificial neural network to generate control signals for artificial limbs from EMG signals.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles A. Marmor, II whose telephone number is (571) 272-4730. The examiner can normally be reached on M-TH (7:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (571) 272-4726. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Charles A. Marmor, II
Primary Examiner
Art Unit 3736

cam
December 7, 2004